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ABSTRACT

This report describes a program for increasing phonemic awareness in the primary grades. The targeted population consisted of first and second grade students from middle class communities located in the Midwest. Research indicated that students who enter primary grades without phonemic awareness might have reading difficulties. Lack of phonemic awareness was documented through the pretests. Analysis of probable cause data revealed that students who enter school lacking phonemic awareness may be lacking home literacy experiences. Other factors that have been identified as having an impact on early language knowledge include predisposition to learning disabilities, income levels, and home and school language differences. Lack of professional training regarding phonemic awareness also limited the identification of at-risk students who needed further training for language knowledge. A review of solution strategies suggested that early interventions might make a difference for the development and outcomes of reading skills in first and second grade children at risk for reading failure. Phonemic awareness can be a part of any classroom by providing rich language experiences that encourage active exploration and manipulation of sounds. Most children will acquire phonemic awareness from these activities. A comparison of pretest and posttest results showed a dramatic increase ranging from 5% to 65% in the percentage of correct answers on skill tests. Analysis of posttest results indicated that a majority of students increased their knowledge of language, and thus improved their phonemic awareness. The teacher-researchers strongly recommend instruction in phonemic awareness for primary students to strengthen language skills. Contains 37 references, 2 figures and 6 tables of data. Appendixes contain pretest and posttest materials, activity sheets, game descriptions, and a list of recommended children's books. (Author/SR)

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ED 433 502

INCREASING PHONEMIC AWARENESS AMONG PRIMARY STUDENTS TO IMPROVE READING SKILLS

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DEDICATION

We dedicate our Action Research to Bonnie Burns, whose inspiration and dedication has encouraged and developed our interest in and understanding of phonemic awareness.

TABLE OF CONTENTS

CHAPTER 1 – PROBLEM STATEMENT AND CONTEXT 1

General Statement of the Problem 1

Immediate Problem Context 1

The Surrounding Community 9

National Context of the Problem 10

CHAPTER 2 – PROBLEM DOCUMENTATION 12

Problem Evidence 12

Probable Causes 15

CHAPTER 3 – THE SOLUTION STRATEGY 21

Literature Review 21

Project Objectives and Processes 27

Project Action Plan 28

Methods of Assessment 35

CHAPTER 4 – PROJECT RESULTS 36

Historical Description of the Intervention 36

Presentation and Analysis of Results 37

Conclusions and Recommendations 44

REFERENCES 48

APPENDICES

Appendix A 52

Appendix B 58

Appendix C 59

Appendix D.....60

Appendix E.....61

Appendix F.....63

Appendix G.....64

Appendix H.....65

ABSTRACT

This report describes a program for increasing phonemic awareness in the primary grades. The targeted population consisted of first and second grade students from middle class communities located in the Midwest. Research indicated that students who enter primary grades without phonemic awareness might have reading difficulties. Lack of phonemic awareness was documented through the pretests.

Analysis of probable cause data revealed that students who enter school lacking phonemic awareness may be lacking home literacy experiences. Other factors that have been identified as having an impact on early language knowledge include predisposition to learning disabilities, income levels, and home and school language differences. Lack of professional training regarding phonemic awareness also limited the identification of at-risk students who needed further training for language knowledge.

A review of solution strategies suggested that early interventions might make a difference for the development and outcomes of reading skills in first and second grade children at-risk for reading failure. Phonemic awareness can be a part of any classroom by providing rich language experiences that encourage active exploration and manipulation of sounds. Most children will acquire phonemic awareness from these activities.

A comparison of pretest and posttest results showed a dramatic increase ranging from 5% to 65% in the percentage of correct answers on skill tests. Analysis of posttest results indicated that a majority of students increased their knowledge of language, and thus improved their phonemic awareness. The teacher-researchers strongly recommend instruction in phonemic awareness for primary students to strengthen language skills.

CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of Problem

Learning to read is one of the most important skills for a child to acquire during the primary grades in school, and though learning to speak comes naturally to children, learning to read does not. At least one in five children may have difficulty learning to read, and this puts them seriously at risk for the rest of their school career and possibly for the rest of their lives (Foorman, 1998). In a longitudinal reading and writing study by Connie Juel in 1988, children who were poor readers in first grade were still poor readers in fourth grade. One factor that was consistently found with children who were identified as at-risk in this study was a lack of phonemic awareness. Phonemic awareness is the knowledge of how language works and the foundation for recognizing words.

Students of the targeted 1st and 2nd grade classrooms have been identified as lacking phonemic awareness, and thus basic decoding skills. Evidence for the existence of this problem was gathered through pretests of phonemic awareness, anecdotal records and teacher observations. Early training and instruction in phonemic awareness becomes extremely important in getting children who are at-risk off to a better start in reading.

Immediate Problem Context School A

School A is located in a northwest suburban area of a large city in the Midwest. School A is one of four elementary schools within the district with grades K-5 in attendance. There are 109 teachers, including classroom teachers and specialty personnel. Of those 109 teachers, all are Caucasian. Eighty-six percent are female and

fourteen percent are male. The average teaching experience for the district is 12.6 years. Forty-six percent of the teachers have Bachelor's degrees and fifty four percent have Master's degrees or above. The average teacher's salary is $43,321 and the average Administrator's salary is $87,325.

Based on 1995-96 data, School A spends $6,621 per pupil. This is $463 more than the state average. Sixty percent of the district's expenditure is spent from the education fund compared to 75.3% which is the state average. Large proportions (19.5%) of the monies are spent on operations and maintenance (School A District Report Card, 1997).

A total of 382 students: 89% Caucasian, 6.3% Asian or Pacific Islander, 3.1% Hispanic, 1.6 % African American, are enrolled in School A. Students from families receiving public assistance, supported in foster homes with public funds, or eligible to receive free or reduced price lunches are a minimal 1.3% of the school's population. Five and a half percent of the students are eligible for bilingual educational services. School A boasts a 96.59% attendance rate; chronic truancy is non-existent. Student mobility rate is 9.0% (School A District Report Card, 1997).

School A has 28 teachers: 17 classroom teachers, a special education teacher, a physical education teacher, a speech teacher, two part-time gifted teachers, two part-time music teachers, a part-time art teacher, a part-time social worker, a library/technology teacher, an English as a Second Language (ESL) teacher, and a part-time Chapter One teacher. Ninety-three percent are female and seven percent are male. The average teaching experience at School A is 10.3 years. Fifty percent of the teachers have Bachelor's degrees and 50% of the teachers have Master's degrees or above.

School A was built in 1968. Several additions have been added to the original state-erected structure. The most recent addition was completed in 1996. A grassy parkway greets the students when they arrive at the front of the building. A well-equipped blacktop-playground provides recreation in the rear of School A. Inside School A are 16 full sized classrooms, five smaller classrooms for specialized teaching, a library, a computer lab, housing 28 Macintosh computers, a gymnasium that doubles as the lunchroom, a multipurpose room, a band room, a conference room, the principal's office, the nurse's office, several storage areas and a teachers' lounge. The local library and the park district are within walking distance of the school grounds. Children frequently take field trips to both of these facilities.

School A has a major commitment to improvement through the use of technology. Every classroom has a minimum of one computer and printer in it. The three fifth grade classrooms have two computers. Currently only the principal's computer and one library computer have Internet capabilities. School A is in the process of acquiring greater Internet accessibility.

The School Improvement Plan states School A will initiate the next approved phase of instruction using technology. This would include the establishment of computer networks: expanded use of the Internet and classroom computers.

Various educational services and programs are currently being used at School A. Grades 1-8 participate in Drug Abuse Resistance Education (D.A.R.E.), a program to educate children about drugs and alcohol, and to encourage children to make wise decisions while building confidence to shun peer pressure. Grades K-8 also have the option of participating in the Summer Reading Program and the Accelerated Reading

Program. These programs offer opportunities to extend reading skills and emphasize the joy of reading outside of the school environment. School A receives grant money for Chapter One. Chapter One provides reading assistance to at-risk children, in the first, second and third grades, who have been identified by the classroom teacher and through specialized testing. A learning disability/behavior disorder (LD/BD) teacher is employed full-time servicing 15 students for an average of 200 minutes per week. The LD/BD teacher works with the classroom teacher either within the classroom or on a "pull-out" basis to assist students with special needs. The gifted teacher works with students who have been identified through the Illinois Goal Assessment Program (IGAP) and teacher recommendation. This "pull-out" service provides gifted students with enriched activities to supplement their classroom learning. In addition to fulfilling the academic needs of students, a social worker is available to assist the school with personal development. English as a Second Language (ESL) services are available for students meeting the state criteria. An ESL state certified teacher is employed on a full-time basis to work individually with students or within the classroom as needed. Currently the ESL teacher works individually with about 19 students on an average of 75 minutes per week. A part-time speech teacher is also available for students with speech and language difficulties. Additional special services include a full-time physical education teacher. Children in grades 1-5 partake in physical education three times a week for 30 minutes sessions. The kindergarten children have physical education classes once a week for 30 minutes. Also within the school week, children participate in a 40 minute music class and a 40 minute art class. Both music and art classes are taught by educators with degrees in their respective fields.

Within the last two to three years, parents have become increasingly concerned about spelling. Responding to this growing concern, the Board of Education agreed to adopt a new spelling program published by Scholastic, Inc., that was implemented in the fall of 1997 for grades 2-8. Less recently, the district adopted the University of Chicago Everyday Math Program. The primary grades have used the Every Math Program for about six years. The fifth grade began using Everyday Math within the past three years. Reading instruction begins in the first grade and continues through the eighth grade. At the primary and intermediate levels a basal reader is available and recommended. The McGraw-Hill Reading Program has been the core of the district reading program for the past eight years. Phonics is taught in kindergarten through second grade using a grade appropriate phonics book, published by Modern Curriculum Press. Trade books, novel studies, and literature circles supplement the reading program.

School staff development workshops have focused on spelling and the engaged learning process this past year. Staff is encouraged to attend other conferences and classes regarding these topic as well as technology.

Immediate Problem Context School B

School B, located in a large metropolitan area in the Midwest, is part of a unit district with 559 schools. There are 23,523 teachers employed in the district, and of these teachers, 76% are female and 24% are male. The racial and ethnic backgrounds of the teachers in the district are 45.7% Caucasian, 42.1% African American, 9.9% Hispanic and 2.0% Asian and Pacific Islander. The average teaching experience is 14.7 years, with 55.4% of the teachers having Bachelor's degrees and 43.8% with Master's and above.

The average teacher's salary in this district is $45,508 and the average administrator has a salary of $73,717 (School B Report Card, 1997).

Based on 1995-96 data, School B spends $7,102 per pupil. This is $944 more than the state average. Eighty-nine percent of the district expenditures go directly to education, as compared to the state average of 75.3%. Operations and Maintenance are only 6.1% of the expenditures (School Report Card, 1997).

The School B building, constructed in 1926, was a Dever Plan School and was dedicated to a pioneer leader of the community who settled in the area in 1834. It has 16 classrooms, a computer lab with 28 computers, an art room, a gymnasium, an auditorium, a lunchroom, and a library. In 1996 the entire building received a facelift of new windows, and the interior went through lead abatement, which led to fresh paint for all classrooms and hallways. The front of the school has a grassy parkway, and the rear of the building is asphalt. A new play lot was built in the fall of 1996, and the school is scheduled to receive a garden, new paving, and a ball field in the near future.

The total enrollment for School B is 377 students, including pre-school through eighth grade. Sixty-seven percent of the students are Caucasian, 5% are African American, 6% are Asian, and 22% are Hispanic. One hundred ten students receive free or reduced lunch and approximately one-third of the students are bused from other schools that are overcrowded. The attendance rate of School B is 96.2% and mobility is at a 6-year low of 21.3%. There is no chronic truancy problem (School B Report Card, 1997).

The staff consists of 14 classroom teachers, four special education teachers, an ESL teacher, a gym teacher, an art teacher, a teacher who specializes in computer education, one aide, one part-time and one full-time administrator. The classroom

teachers in the building have an average of 12 years of experience. Ten teachers have a Bachelor's degree and the others have a Master's and above. Two clerks, a counselor, a support staff of four, and a kitchen crew of two complete the daily staff. There are various support services, such as speech and social work, which are provided on a part-time basis, one or two days per week.

The components of the reading program in School B consist of a basal reader, a phonics program, and trade books. The basal series is Heath Reading by DC Heath and was purchased by the school in 1990. It is loosely used throughout the school, although some teachers have abandoned it in favor of novel studies and a whole language approach. The phonics program is called Land of the Letter People, which was developed in the 1970s, expanded in the 1980s and has just recently undergone revision in 1997. It was adopted in 1995 from New Dimensions in Education, Inc.

In addition to core curriculum instruction, students receive classes in physical education, library and research skills, art and computer education. Classes for students with special needs include English as a Second Language, in which 10% of the school population is enrolled for an average of 150 minutes per week. Two of the special education teachers are used as resources and pull out students from regular education classrooms for a specified number of minutes per week. School B also has two self-contained special education classrooms. There are 73 active Individual Education Plans (IEP) in operation, which serve children who have learning disabilities, emotional and behavioral disabilities, speech and language problems, hearing-impaired disabilities, and occupational disabilities.

There is a deep commitment to expanding technology in the school. Currently the school is working in partnership on a Technology Literacy Grant. This spring will see the installation of a Wide Area Network (WAN) and a Local Area Network (LAN), which will enable the school to begin establishing and expanding Internet connections. The computer lab in the school is the center of an on-going debate as to whether the lab will be maintained, or whether the computers should be distributed into the individual classrooms. There is a technology committee studying the various issues involved in advancing technology in the school.

In support of School B's vision and mission, many opportunities are provided to the students in the form of special programs. They include the following: After-School Social Center, Cub Scouts, Full Day Kindergarten, Sports, Student Council, Gifted Math and Great Books instruction. The school was awarded an Illinois Arts Council Grant enabling a whole school production of Peter Pan. There are numerous other programs for children to participate in including Family Life Programs, D.A.R.E., Read to Succeed, Pizza Hut Book It, and Young Authors.

Priority goals for School B in the 1997-98 school year include increasing student achievement in language arts, increasing and integrating math and technology into the classroom, and promoting staff development. Chapter One funds were allocated to reduce class size, and to cover the cost of office supplies. There is an Eisenhower Grant and a Block Grant (Senate Bill 730) which have been earmarked for staff development (School B Improvement Plan, 1997-98).

The Surrounding Community School A

School A is located in a small suburb having a total population of 15,239 however, the community is adjacent to much larger suburbs. Children from three of the surrounding communities also attend School A.

The average income of people in School A is $48,851 per household. The average resident is 32 years old. This upper-middle income community boasts an average home price of $215,570. Housing ranges in price from $60,000 for the less expensive condominiums to $500,000 for a higher priced single-family home. Crime is extremely low in the School A community with a crime ratio of 2.552% (Wexcel)

The Surrounding Community School B

School B is located on the northwest side in a neighborhood of a large metropolitan city, largely populated by firefighters, police officers, and their families. The population of this neighborhood is 11,482, and while it was once known as having a large percentage of older citizens, in the last decade it has seen an influx of young families. The median age is 44.9 years. There are three public elementary schools and one parochial school that serve the community.

The median income of residents in School B's neighborhood is $60,989 per household, and single family homes range from $130,000 to $300,000. Most apartments, confined to main thoroughfares, have been converted into condominiums, with prices from $80,000 to $140,000. The neighborhood is a relatively crime free area (Wexcel).

Regional and National Context of the Problem

Reading achievement and children's ability to learn the necessary skills have been at the heart of debate for many years, both nationally and locally. There is question as to what techniques and methods work best to teach children to read. The pendulum periodically swings back and forth between "whole language" and phonics. The issue has such importance that the American Federation of Teachers will be studying the research on what works best for teaching reading, particularly for disadvantaged students (The basic ingredient, 1998). There can no longer be much doubt that a thing called phonemic awareness is the key to learning to read languages with alphabetic orthographies, as in the English language (Gough and Larson, 1998). While half of the students will learn phonemic awareness effortlessly, the other half will struggle. They will be educationally disadvantaged if they do not learn to read by third grade (The basic ingredient, 1998).

As some researchers have probed into the question of whether those children who have been identified as poor readers continue to remain poor readers year after year, additional questions about poor readers and the characteristics of poor readers began to surface. A question for example, would be "Does early identification of poor reading and writing abilities carry through in later years" (Juel, 1993). Research conducted by Connie Juel, University of Texas at Austin (1988) found that children who become poor readers entered first grade with little phonemic awareness. Lundberg (1984) also linked the lack of phonemic awareness of children entering school to poor readers. However, children at the pre-school age can be taught to discover and manipulate the phonological elements in words (Lundberg, Frost, and Petersen, 1988). Certainly, educators and

administrators should explore phonemic awareness and the possible impact phonemic instruction could have on students' reading abilities.

Is phonemic awareness a key to learning to read well? According to certain studies, we have known for some time that phonemic awareness in preschoolers predicts later reading achievement as well as or better than any variable yet investigated. Equally important, many studies have shown that teaching phonemic awareness to those who don't have it, significantly increases their subsequent reading achievement (Bradley & Bryant, 1983; Cummingham, 1989; Lundberg, Frost & Petersen, 1988).

Not all students enter school with the same level of phonemic awareness. Our objective is to increase phonemic awareness in all students in the targeted 1st and 2nd grade classrooms. Evidence for the existence of this problem was gathered through a pretest of phonemic awareness, a survey of phonological tasks, and teacher anecdotal records. Early training and instruction in phonemic awareness can be extremely important in getting children who are at-risk off to a better start in reading.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

In order to identify the levels of phonemic awareness of the targeted 1st- and 2nd- grade students at School A and School B, the teacher-researchers administered two pretests to all of the students. These pretests were given to each student as oral and as paper and pencil tasks that encompassed the five main elements of phonemic awareness.

The assessment tools that were used came from various leaders in the field of reading and phonemic awareness. During the third and fourth weeks of the school year, students were assessed through tests designed by Marilyn Adams (Appendix A) and Keith Stanovich (Appendix B). The Adams test was administered to all of the students at one time at School A. The same test was administered to students in School B in groups of four to five students. All students responded on a student test form to tasks of rhyming, counting syllables, initial sounds, counting phonemes, comparing word lengths, and representing phonemes with letters. The test was six pages in length. Each of the six pages consisted of five questions that the students responded to on the test form. The total number of possible correct answers for the test was 30 points.

An analysis of students' scores for Schools A and B indicated that while students were strong in certain areas of phonemic awareness, there exists an opportunity for growth and development in others. As shown in Table 1, the students at School A in general scored higher than those at School B. Both schools scored 95% on detecting rhymes and on matching initial sounds. When comparing word lengths, both schools also scored well, with School A performing at 90% and School B at 85%. School A scored

25% higher on counting syllables, and 50% higher on representing phonemes with letters. Test scores may be higher for School A because the second grade students have had greater exposure to reading and spelling than the first grade students at School B. Both schools had low scores on the sub-test counting phonemes with School A scoring 45% and School B scoring only 10%.

Table 1.

Correct Responses on Adam's Phonological Assessment

Skill category	School A	School B
Detecting rhymes	95%	95%
Counting syllables	60%	65%
Matching initial sounds	95%	95%
Counting phonemes	45%	10%
Comparing word lengths	90%	85%
Representing phonemes with letters	90%	40%

Note. Correct response indicates 4 or 5 correct responses out of 5 questions.

The Stanovich test was prepared as an informal survey of nine oral phonemic awareness tasks. These tasks focused on the five main elements of phonemic awareness. Students from Schools A and B were given this test individually by the teacher-researcher from each of the respective research sites.

Table 2 gives the percent of correct answers for each school on each of the nine items on the test. The students from School A scored higher than the students from School B on six of the items, while scoring lower on two. The students in School A are in second grade and have had more experience with letters, sounds, and reading, while those in School B are first graders, many of whom are rather new to the reading process. Both schools scored 70% on sound isolation and 80% on initial sound isolation, indicating this is not an area that has been neglected in current instruction. The students

in School A scored better in the areas of phoneme deletion, which is leaving sounds off of a word, in blending, which is putting isolated sounds together to make a word, and in phoneme segmentation, which is breaking a word down into individual sounds. They also scored higher in phoneme counting, which is counting all of the sounds heard in a word, and on initial sounds, which is identifying the word that begins with a different sound in a series of words. The students in School B scored higher in the areas of word to word matching, which is identifying whether or not two words have the same initial sound, and in phoneme deletion, which is the skill of eliminating a sound from a word and identifying the sound that has been removed. An example of phoneme deletion could be to identify the missing sound in eat that was heard in the word meat. The School A teacher- researcher felt that the prior knowledge of the students involving word structure and spelling patterns may have interfered with their ability to separate sounds. Often students from School A would answer by naming the letter rather than making the letter sound.

Table 2.

Correct Responses on Informal Assessment of Phonological Awareness by Stanovich

Test Item	School A	School B
1. phoneme deletion	85%	25%
2. word to word matching	55%	90%
3. blending	85%	80%
4. initial sound isolation	80%	80%
5. phoneme segmentation	75%	60%
6. phoneme counting	70%	60%
7. phoneme deletion	55%	65%
8. initial sounds	75%	60%
9. sound isolation	70%	70%

In conclusion to the pretest results, the students from School A have more skills in phonemic awareness than the students from School B. This may be accounted for in the grade level difference between first and second grade. There are general areas in which all of the students scored lower than 50%, indicating that there is room for improvement. Pretest scores seem to indicate sound isolation and phoneme counting to be the weakest areas of phonemic awareness in both schools.

Probable Causes

Learning to read is one to the most significant skills that students must acquire during their formal education. It is a complicated and unnatural task for the brain to perform, and it is critical for success both in school and in life. There is a contradiction in the ease with which most children learn to speak and the difficulty that these same children may have learning to read (Lyons, 1998; Ball & Blachman, 1991.) In order to learn to read, children must find a way to unlock the alphabetic code and to understand that words are broken down into syllables and phonemes (phonemic awareness). They must also discover that a phoneme is a unit of speech that is represented in each of the letters of the alphabet, which is referred to as the "alphabetic principle" (Ball & Blachman, 1991).

Many children acquire these skills effortlessly without any formal instruction. It is believed that this happens in environments where children are exposed on a daily basis to reading and print experiences. Those children who do not experience enough bedtime and lap time literacy interaction, and who come from limited English proficient homes,

where adult reading levels are low, are at an increased risk of failure to acquire this necessary phonemic awareness (Lyons, 1998). Research reports that students who enter first grade phonemically unaware will probably still be poor readers at the end of fourth grade (Juel, 1988). A lack of phonemic awareness also interferes with grasping and understanding phonics instruction.

In reviewing current research and literature, phonemic awareness emerges as a key link to children and their ability to read. It has become an established fact that phonemic awareness is a greater predictor of successful reading achievement than many IQ or general language proficiency tests (Stanovich, 1994; Griffith, 1992; Adams, 1990). Reasons that a student may not possess these skills include poverty, lack of early language play, a predisposition to learning disabilities, the continuing "Great Debate" of phonics versus whole language, and a large number of professionals who are lacking appropriate and sufficient reading training.

G. Reid Lyon of the National Institute of Child Health and Human Development (NICHD) states that children living in poverty are most at-risk for reading failure (1998). Patricia Cunningham (1999) corroborates this when she states that "poverty is not the only factor that determines if a child is at-risk for reading difficulties, but it is the most pervasive one (p.1)." In a longitudinal study of reading and writing development by Connie Juel in 1988, results included data supporting the position that students from low socioeconomic status, particularly in Black and Hispanic communities, were more likely to have poor phonemic awareness.

Children in low-income homes have less exposure to books, less word play with nursery rhymes, fewer trips to the library and other sources of literary stimulation

(Cunningham, 1999; Lyons, 1998). There is also a greater difference between the language used at home and that used at school. These children are less likely to have experience with pencils, markers, magazines and books. There is less time for interaction between children and older siblings or parents with reading and writing experiences. When parents are trying to stay above the level of poverty, two incomes are often needed. Students attending School A and School B who come from homes where both parents are working seem to have less consistent "at home" routines and often experienced long absences of adult and child involvement, particularly with literature than do children with one working parent. Several of the children at the targeted sites living with a single parent also appeared to be disadvantaged with regards to adult and child involvement. Those students who have come from homes with parents lacking education were noticeably deficient in language and literary skills. These students miss out on thousands of hours of literacy experience with which their peers enter school (Cunningham, 1999).

A lack of preparation at home, which includes stimulating literacy experiences from birth to school age, and limited exposure to bedtime and lap time reading all contribute to the likeliness that a child will enter kindergarten or the early elementary grades without a knowledge of sounds and letters (Foorman, 1998; Adams, 1990; Lyons, 1998). With the increase in technology, many children in the targeted sites spend more time on the computer playing games than they do interacting with other children or adults. An additional diversion is the television that exposes children to poor language models and slang. At School A, less than 11% of the students are minorities while less than 33% of the enrollment at School B are minority students. Five percent of those students from School A receive ESL services. Ten percent of the students from School B

receive ESL services. Varieties of language dialects, mispronunciation of words and sounds, and poor enunciation all attribute to the lack of sound and letter knowledge. Language play is a necessary component to sound structure and language patterns. These play a critical role in learning to read (Diamond, 1996).

Another factor causing at-risk readers would be a predisposition to LD, including hearing loss, speech impairments, and language difficulties (Lyon, 1998). These conditions may interfere with a child's ability to hear rhymes or alliterations, to blend sounds, and to make words. It may also account for their inability to perform phoneme segmentation in words, to identify beginning, middle, and final sounds in words, and to substitute one phoneme for another. Many times there is reluctance to identify children at the primary level with suspected learning disabilities. Development during the early primary years, kindergarten through second grade, is so individual that both parents and educators tend to resist or delay testing. Often LD problems do mimic developmental delays. Unfortunately, the children in the targeted sites lose ground when learning difficulties have interfered with the ability to develop phonemic awareness and place them further at-risk. To hear rhymes and alliterations, to blend sounds, to count phonemes, to identify sound placement and to substitute phonemes are all critical skills in the early stages of learning to read (Diamond, 1996).

Historically in North America, there has been an ongoing controversy in reading education called The Great Debate. In its simplest form it is whole language reading instruction versus phonics instruction (Stanovich, 1994). This "reading war" has served to cloud important issues and to bring polarization to reading instruction. In both School A and School B diverse teaching philosophies, often influenced by current educational

trends, have impeded reading instruction. Some of the teachers within the targeted sites are reluctant to expose students to a variety of literacy experiences. Adams (1990) came to the conclusion that those children, particularly those at-risk need frequent and rich varieties of reading and writing experiences, as well as explicit instruction in letter-sound patterns. This would seem to dispel the need to take a position on one end of the debate or the other.

Teaching reading is very complicated task. Two leaders in the reading field, Marilyn Adams, Ph.D., and Hallie Kay Yopp, Ph.D., recognize that too many professionals and teachers are lacking sufficient training in reading instruction. Teacher preparation and instruction have not focused on these key areas necessary for acceptable classroom experiences for students, namely:

- an understanding of how the mind works
- information about how people use language
- knowledge about the English linguistic system
- diagnostic and research information (Diamond, 1996).

Most educators have not been continually inserviced on the current research in reading instruction (Diamond, 1996), or in the current scientific contributions to the field of reading and how children learn (Stanovich, 1994). Recently in School A, the kindergarten students have received phonemic awareness testing to identify students at-risk. However in School A and in School B primary teachers have not received in-service training regarding the importance of phonemic awareness. Several primary teachers at both of the targeted sites believe phonemic awareness and phonics are one in the same. Most of the teachers do not consciously plan daily or weekly phonemic

awareness activities. They lack the understanding of phonemic awareness and its effect on reading. They have not been provided the research to substantiate the need for teaching phonemic awareness in the primary grades.

Is it any wonder that many students, both entering school and at the primary level of instruction, lack phonemic awareness? Both site-based investigation and research literature have similar findings. The casual atmosphere of society coupled with the multitude of cultural influences, interfere with speech and sounds patterns children hear and manipulate. Parent involvement has lessened as the need for two family incomes has increased. Children are not spending as much time at home due to involvement in extracurricular activities or before and after school daycare. When children are at home, they are finding entertainment in front of the television or with video and computer games rather than engaging in adult interaction. Educators continue to struggle with teaching whole language versus phonics. Research about phonemic awareness does not saturate schools and reach teachers thus contributing to the lack of phonemic instruction in classrooms.

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

Reading is acquired through the knowledge of how language works. This knowledge, also called phonemic awareness, is the understanding that spoken words are composed of sounds and that letters correspond to these sounds (Diamond & Mandel, 1996). The ability to examine language without focusing on meaning, to attend to sounds in the context of a word, and to manipulate the component sounds is critical to achieving success in early reading (Fitzpatrick, 1997; Yopp, 1992).

The relationship between reading and phonemic awareness is well established. In Juel's longitudinal study of children in first grade through fourth grade, she found that poor first grade readers became poor fourth grade readers. These children entered first grade with little phonemic awareness, and while this knowledge did steadily increase, they never acquired the level of knowledge that average or good readers possessed (1988). Marilyn Adams in Beginning to Read states that "only those prereaders who acquire awareness of phonemes learn to read successfully" (p. 293). Numerous studies have labeled phonemic awareness as the best and most powerful predictor of success in reading, even better than more global measures such as IQ, general language proficiency, or mental age (Griffith & Olson, 1992; Adams, 1991; Ball, 1991; Juel, 1988; Tumner & Nesdale, 1984; Stanovich, Cunningham & Freeman, 1984).

Phonemic awareness also plays a role in understanding the alphabetic principle, namely that letters stand for the sounds in spoken words (Griffith & Olson, 1992). Alphabet knowledge and phonemic awareness work together to support the earliest stages

of reading and spelling (Byrne, 1993). Learning to sound out words is a significant step if children are going to learn to read at higher levels (Vellutino & Viadero, 1998).

Reading does not develop naturally, and for many children specific decoding and word recognition skills must be taught directly and systematically. Most children enter kindergarten without any conscious awareness that words are made up of distinct sounds. Rather, they hear words as complete units (Diamond & Mandel, 1996). Beginning readers must be taught to distinguish sound patterns, unglue sounds from one another, and learn which sounds go with which letters (Lyons, 1998). Phonemic awareness provides the backbone for reading instruction. When combined with the alphabetic principle, students will be able to make associations with letters, sounds, and words (Nation & Hulme, 1997; Bradley & Bryant, 1985; Ball, 1991).

Several training studies have shown that preschool and kindergarten children who have been exposed to programs that facilitate phonemic awareness have been proven to be more successful readers (Adams, 1991; Stanovich, 1994; Ball, 1991). Children who receive explicit training in phonemic tasks improve their reading achievement significantly (Ball & Blachman, 1991; Bradley & Bryant, 1985; Lundberg, Frost & Peterson, 1988). In the Lundberg study (1988), it was proven "that phonological awareness can be developed *before* reading ability and independently of it". It was also found that phonemic awareness had a positive effect on later reading acquisition. This study points to the fact that phonological skills can be learned outside of formal reading instruction. There is an exciting implication here that children who are at risk for learning to read could be identified with early screening tools, such as phonological assessments. The results of this information could be used to guide and direct instruction

for these children in explicit phonemic awareness tasks as part of their early reading instruction (Snider, 1997).

Children must be encouraged to play with the sounds of language through developmentally appropriate activities. Phonemic awareness can be part of any classroom by providing rich language experiences that encourage active exploration and manipulation of sounds. Most children will learn basic phonemic awareness from these types of activities. Riddles, guessing games and songs can provide a comfortable and engaging vehicle for children to explore sounds in language (Diamond, 1996; Yopp, 1992). Professor Calfee cites the importance of making instruction active. He encourages 10 to 20 minutes of word play each day (Calfee & Moran, 1993; Diamond, 1996). Both Adams (1998) and Yopp (1992) support this view with suggestions that children be engaged in active listening games, jingles, songs, and poetry 15 minutes each day at a regular, designated time.

Some authorities believe that it is important that these activities related to phonemic awareness be taught in the context of meaningful literature, rather than developed in isolation (Griffith & Olson, 1992). The tasks related to phonemic awareness will have no meaning to children if they can not see a use for them. Reading instruction at its best combines immersing children in rich language by reading to them and providing access to a variety of texts. At the same time it explicitly and systematically teaches them the sounds and their symbols and connects these with decodable texts (Lyon, 1998; Diamond, 1996; Griffith & Olson, 1992). This goal can be accomplished by relating sound segmentation tasks to the actual process a student experiences each day, such as when trying to read or spell a word.

Marilyn L. Chapman (1996) takes the position that while phonemic instruction may take place without focusing on meaning, it needs to be connected to literature or writing or the students will perceive it as unrelated to reading and writing. Richgels, Poremba, & McGee (1996), who contend that instructional techniques for teaching phonemic awareness must be embedded in contextualized reading and writing, support this view. While it is important to attend to speech sounds at the phoneme level, it is also important to attend to the printed page. They believe that phonemic awareness develops in a holistic context, including meaningful encounters with print. Stanovich (1984) states that print exposure is a predictor of verbal growth, knowledge acquisition, and a host of verbal skills. It seems to have a positive effect regardless of a child's cognitive and reading abilities, and is a strong predictor of cognitive growth, even in the least advantaged children.

Cunningham (1999) suggests that kindergarten must simulate what happens in literate homes where books and writing tools and reading and writing have been part of childhood since birth. These children have spent over 1,000 hours in literacy related activities. Many students begin their formal school experience in a state of "low readiness" as described by Adams (1990), and they need direct and explicit instruction in phonemic tasks. These children have not been engaged in lots of reading and writing experiences before coming to school.

There are opposing views as to how the reading instruction of these students should proceed. Goodman (1986), along with the National Association of the Education of Young Children (1988) and the International Reading Association (1986), suggest that it is not educationally or developmentally sound to teach isolated or abstract skills to

children. The approach that they would offer is one that emulates the behaviors of parents in literacy-rich homes. It would include reading aloud to children, modeling and demonstrating the reading and writing process, "thinking aloud" during the reading and writing process, and explaining how print works in the context of reading and writing. This would seem to challenge the idea of direct and explicit phonemic awareness instruction.

Adams writes that "invented spelling activity simultaneously develops phonetic awareness and promotes understanding of the alphabetic principle" (1990, p.99). Since reading and writing are so closely related, when children are asked to write, they will develop more phonemic awareness. They will "face head-on the problem of mapping spoken language onto written language" (Griffith, 1992, p.521).

All children would benefit from an approach that includes phonemic awareness and engaging literature. Teachers can expose children to literature that plays with the sounds in language and at the same time they can provide explicit instruction in the skill set that makes up the knowledge of phonemic awareness, namely rhyming, alliteration, segmentation, blending and sound substitution (Adams, 1998; Griffith & Olson, 1992).

Major studies at the National Institute of Child, Health and Human Development (NICHD) found that one of the features that predisposes children to reading disabilities is difficulty with phonological processing. This is manifested in areas of lack of phonemic awareness, difficulty with lexical access (the ability to rapidly name pictures, numbers, or objects) and deficits in phonological memory, which is the ability to hold lexical units and then to operate on those units. Three strategies suggested for successful interventions include (1) helping children understand the sound structure of language at the phonemic

level, (2) intensive work in sound/symbol associations, ranging from thirty minutes a day, five days a week, to one hour at a time in a 1:1 tutorial, and (3) applications to connected texts with a controlled vocabulary (Lyons, 1998; Diamond, 1996). The research further indicated that interventions must begin early. If schools delay interventions until the age of seven for children experiencing difficulty, 75% will continue to have difficulty.

In 1994 a New Zealand study was designed and conducted to determine if early training in phonological awareness would get children off to a better start in reading and spelling. Results were clear that children who started school with low levels of phonemic awareness and who did not receive training in these skills were more likely to need remediation. Extra phonemic training for children with low levels of these skills may give them a better prognosis. The addition of phonemic training at school entry gets children off to a better start in learning to read and spell within a whole language program (Castle, Riach, & Nicholson 1994).

Early instructional intervention makes a difference for the development and outcomes of reading skills in first and second grade children at-risk for reading failure. In a 1994 study of students served by Title 1 programs, the degree of explicitness in alphabetic code and the effects of phonological processing on growth in word reading were examined. Children who were directly instructed in the alphabetic principle improved word-reading skills at a significantly faster rate than children indirectly instructed in the alphabetic principle through exposure to literature did. To prevent reading failure for a large numbers of children the alphabetic principle should be taught in a direct and explicit way (Foorman, Fletcher, Francis, & Schatschneider, 1998).

Children should be diagnosed mid-kindergarten to see if they are progressing, and if not, they should be given more intensive phonemic experiences (Diamond, 1996). Research has shown that about 20 minutes a day, three or four times a week will result in dramatic improvement for students who need further development in phonemic awareness (Foorman, 1994). Most of the research for treating reading-disabled children points to a clear strategy. It suggests that at minimum, poor readers need explicit instruction in phonemic awareness, phonics, and the structure of language. And they need enough practice to enable them to make use of those skills automatically (Viadero, 1998).

Phonemic awareness is critical to achieve success in reading. It is the foundation for learning to recognize words. Absence of phonemic awareness is characteristic of students who are failing, or who have failed to learn to read. The implication is clear that phonemic awareness can significantly bridge the gap between inadequate preparation for learning to read and success in beginning reading (Fitzpatrick, 1997; Ball & Blachman, 1991).

Project Objectives and Processes

After reviewing the literature on the problem of student's lack of phonemic awareness, the teacher researchers created the following project objective:

As a result of teacher-directed language activities during the period of September, 1998, to December, 1998, the targeted first and second grade students will increase their language knowledge resulting in increased phonemic awareness, as measured by the Adams and the Stanovich language surveys, and by teacher observation.

In order to accomplish this project objective, the following processes are necessary:

1. Obtain curricular materials that foster phonemic awareness.
2. Implement tasks and assessments that address phonemic awareness development.
3. Revise classroom schedules to allow time for phonemic awareness activities.

Project Action Plan

In preparation for the implementation of interventions, the teacher researchers collected several resource books that covered the various levels of phonemic awareness and a variety of pre-made assessments. Each of the activities used in this study was carefully selected from Phonemic Awareness: Playing with Sounds to Strengthen Beginning Reading Skills (Jo Fitzpatrick, 1997), Phonemic Awareness Activities for Early Reading Success (Wiley Blevins, 1997) and Phonemic Awareness in Young Children (Adams, Foorman, Lundberg, and Beeler, 1997). The activities were chosen and sorted based on time efficiency and task clarity. Lesson plans were constructed to allow phonemic awareness to become a part of the regular classroom curriculum. To assess the students before and after the intervention, the Informal Survey of Phonological Awareness by Stanovich and Adams' Phonological Assessment were used as pretests and posttests.

In order to accomplish the project objective, several phonemic awareness interventions were the focus of instruction. These interventions included rhyme and alliteration, blending, sequence of sounds, sound separation, and the manipulation of sounds.

Rhyming activities helped direct attention to the sound-structure of words. Rhyming and alliteration activities helped students identify and match similar word patterns. Through exposure with rhyming and alliteration, students developed the ability to compare and contrast the overall sounds in words (Fitzpatrick, 1997). Poems, stories, songs and chants using rhyme and alliteration were used to help the students focus on and compare sound patterns.

Hearing sounds in sequence and blending these sounds together to make a word is the second level of phonemic awareness. Engaging students in tasks consisting of tapping or clapping syllables, the acoustical and articulatory flow of oral language, and games using and blending individual sounds to form words were modeled and then played.

At the third level of phonemic awareness, sound sequence, students listened for the placement of a specific sound in a word and identified beginning, middle and ending sounds in those words. The use of picture cards, phoneme isolation and matching sound games, along with verbal word play was practiced. The emphasis was on listening, not letter recognition.

Phoneme segmentation, identifying individual sounds and phoneme counting, are each a part of sound separation. Through the use of markers, counters, class word lists, classroom literature and verbal play, the students engaged in a number of activities to identify and count individual sounds in words.

Through the manipulation of sounds, students participated in word play by substituting beginning, middle, and ending sounds in words both orally and through the

manipulation of letter cards. Using the same techniques the students also learned to omit beginning, middle and ending sounds of a word.

Week 1

Teacher researchers administered the Stanovich Informal Survey to each student individually over the first week.

In groups of 10 to 20 students, the teacher researchers administered the Adams' test. During story time, students were read to from a collection of Dr. Seuss books (Appendix H.)

Week 2

The teacher-researchers read rhyming stories and poems aloud. Certain sections of stories were reread, omitting the matching rhyme and required students to "fill in the blanks". The students were taught jingles and verses that used rhyming patterns. The children clapped the rhyme of poems, as they were read and substituted poem words. Also when reading poems or rhymes, the teacher-researchers would let the children fill in their own rhyming words. A "Rhyme Away" (Appendix) story was read from Phonemic Awareness by Fitzpatrick. A Rhyme Away picture was created on the chalkboard. The teacher-researchers read each rhyme in the story, omitting the underlined words. Children orally filled in the missing words and then erased parts of the picture that corresponded with the answers. Children got into small groups of four to five. Each group would receive a set of rhyming picture cards. The students then took turns trying to match their picture card to another picture card that rhymed. An additional activity

activity involved each group in working together to sort their cards into rhyming families. Then students matched sounds to letters using alphabet cards. Students would listen to three words. Two of the words had a common sound. The students were asked to identify the word that did not belong. Reading rhyming stories and stories using alliteration continued throughout the second week.

Week 3

"Draw a Rhyme" (Appendix D) engaged the children in a story. As the story was read, a rhyming word was omitted and the children drew a picture of each word that had been left out. When the children had completed their drawing, to their delight, they discovered they had drawn a picture of a monster. To hear how phonemes blend together, the children constructed turtle puppets on craft sticks. Using words from classroom literature, the students were asked to repeat these words very slowly to mimic the movement of turtles. Make sure the students articulate each sound slowly as they move their turtles from left to right as they repeat the words. Next the instructor had a few students come to the front of the class. Each student was asked to be a certain sound in a pre-selected word. Then the students stood together in the proper order to voice the sound they have been given. The other students tried to guess the word by blending each of the sounds together. To assist students in identifying beginning, middle and ending sounds, picture cards made from magazines, hand drawn, or pre-made were used in grouping activities and games similar to Concentration and Go Fish. Students practiced oral blending skills by drawing words as the teacher segmented them into onset and rhyme. As the children became familiar with this activity, words were segmented

phoneme by phoneme. Students acted out action words as they identified the words the teacher-researchers had segmented by phonemes. Mirrors were distributed to small groups of students. Students were asked to repeat words aloud from current word lists and classroom literature. The students observed themselves in the mirrors. They were asked to pay particular attention to their tongue movement, mouth position, and teeth as the various words were articulated. Reading and word play was continued to build word awareness and word patterning.

Week 4 and 5

Stories were selected using alliteration to practice phoneme isolation and rhyming while building and strengthening the students' listening skills. Daily word play was conducted by having the students clap syllables in words used in the classroom, including spelling lists, reading vocabulary, etc. The students' awareness of syllables was expanded through an activity that had children split two syllable words in half using hand motions. Games that matched sounds to letters were played. Phoneme isolation was practiced by using sound dominos (Appendix E) and playing the Name Chant Game (Appendix F). Games of this type help to develop awareness of sounds and their position in a word. In the beginning of week four, students began to identify the sounds they heard at the beginning of words. Continuing through weeks four and five, the students were introduced to isolating sounds at the beginning, middle and end of words. The students manipulated initial or final letters in simple three letter words to practice blending and matching sounds. An example of this type of activity could be shown with the word m-a-p. Change the final consonant 'p" to "n" to make the word m-a-n. Then change the final consonant again to "d" to make the word m-a-d.

Weeks 6 and 7

Stories were read daily from the recommended book list (Appendix H). The students continued to practice phoneme isolation through games and songs. Sound boxes were used to help students begin to count the number of sounds they heard in words. The sound boxes were constructed to hold two, three and four phoneme words. If the children had learned sound-spelling correspondence, they wrote the spelling for each sound they heard in each one of the boxes. The children exaggerated the sounds they heard in the words as they said them. Current classroom word lists were used. With rhyming picture cards, the students matched initial, medial, or final sounds. A select sound was targeted and the children responded with a "thumbs up" when they heard that sound read in a general word list. Props were used to correspond with the ending phonemes such as "an" or "at" by having the children build words by adding an initial phoneme. For example, "an" could become p-a-n, f-a-n, or m-a-n.

Weeks 8 and 9

The separation of sounds was the focused skill for the following two weeks. The students played several games that practiced the identifying of individual sounds/phonemes and the number of sounds/phonemes heard in words. The teacher-researcher said words aloud and the students echoed the blended words back to the teacher. Using their bodies to identify the placement of selected sounds, the students placed their hands on their head for the initial sound, the waist –medial, and toes –final as the teacher-researcher said words from a prepared word list. Color-coded linking cubes were used to assist the students with phoneme counting. Each colored cube represented a different number of

phonemes. The children participated in clapping and tapping exercises on their desk as they counted phonemes from the various classroom word lists.

Students were read to daily from the recommended book list.

Weeks 10 and 11

Attention to letter sounds and relationships was emphasized throughout the following weeks. To develop the students' appreciation of vowel distinctions, they began manipulating sounds by phoneme substitution and phoneme deletion. Words were written on the board. Each phoneme was sounded, then blended and finally the word was identified. Next, one letter in the word was replaced and then others. Word families were built. The children participated in games using individual letters cards that could be manipulated to form a variety of words. Children had their own set of letters or in some incidences, the children were individual letter, depending on how the game was to be played. Silly rhyming songs were sung and the children substituted the initial sounds in the verse with other sounds. Verses and tunes were taught. New verses were created using other alliterations or rhyming words. For example, six silly snakes slightly spotted could be changed to two toothless tigers tasted toast.

Children were read to daily from the recommended book list.

Weeks 12 and 13

All levels of phonemic awareness were revisited through games, chants, and stories. The knowledge the children had acquired over the past several weeks was utilized and strengthened through additional activities of phoneme substitution, deletion, isolation,

blending, and sound matching. Letter cards were used and explored by the children and they were encouraged to use them to create words. Classroom word lists were distributed and the children hunted for smaller words hidden in larger words. Children began to manipulate vowel sounds in simple one-syllable words changing bug to big or bag. Building word families continued and discussions about the relationship of words occurred frequently. The children were read to daily from the recommended book list.

Week 14

The teacher-researchers administered posttests.

Methods of Assessment

In order to assess the effects of the interventions, two posttests, the Stanovich and the Adams, covering the targeted knowledge in phonemic awareness will be administered. In addition, the teacher-researchers will be keeping anecdotal records on each student and will keep notes and logs on their experiences as they participate in the phonemic awareness activities in their classroom (Appendix G).

CHAPTER FOUR

PROJECT RESULTS

Historical Description of the Intervention

The objective of the project was to improve the students' language knowledge by increasing their phonemic awareness. This would be accomplished through a variety of activities and a rich language environment. The targeted classrooms were comprised of one first grade classroom and one second grade classroom.

The activities were selected based on the appropriateness of the grade and skill level of the students, as well as preparation time and implementation. These activities were also selected to spiral the levels of phonemic awareness as familiarity with language developed within each of the students. The only deviation from the project action plan was the elimination of several activities. The teacher-researchers re-evaluated the activities only to discover that time would limit the implementation of some of them.

All of the levels of phonemic awareness were introduced throughout the intervention. Phonemic awareness activities became part of the regular classroom day and were integrated into all areas of the curriculum. While building language knowledge through increased phonemic awareness, the students were engaged in activities promoting all learning modalities. The activities included rhyming, clapping, hand and body movement, singing, drawing, verbal response and writing.

The intervention began early in the school year with activities that used rhyme and alliteration. These activities helped the students identify and match similar word patterns and begin to make sound comparisons. Then students began to listen for sounds in sequence and began blending sounds together to make words. Activities at this level

involved clapping and tapping sounds and many games using and blending sounds. As the students continued to build their language knowledge through phonemic awareness, picture cards, phoneme isolation and matching sound games were played along with additional verbal word play. Students also used markers, counters, classroom literature and more verbal word play to increase their knowledge of identifying and counting individual sounds in words. Through sound manipulation, skills were reinforced to increase awareness of beginning, middle and ending sounds.

Throughout the intervention, students were immersed in word play, daily stories, and phoneme manipulation using classroom word lists from the basic curriculum within each classroom. Students revisited previously introduced levels of phonemic awareness regularly as they moved through the phonemic levels.

To assess the effects of the intervention, the teacher-researchers used pre-made tests and anecdotal records of students' work. The anecdotal records were a summation of the activity, the difficulty level for the students for each activity, and the length of time for preparation and implementation of the activity. Two pretests were administered to students prior to the invention. These tests were administered to determine baseline knowledge of phonemic awareness. Following the intervention, the same two tests were administered as posttests (Appendix A & B). A discussion of the test results will follow.

Presentation and Analysis of Results

In order to assess the effectiveness of the phonemic awareness interventions, the targeted students were given posttests identical to the pretests. The first was the Adams Assessment of Phonological Awareness (Appendix A). This test was administered to the

first grade class in small groups of four or five students. It was given to the entire second grade class at one time. The paper and pencil test consisted of 30 questions and addressed six skill categories. The following Figures 1 & 2 report the comparison of pretest and posttest results.

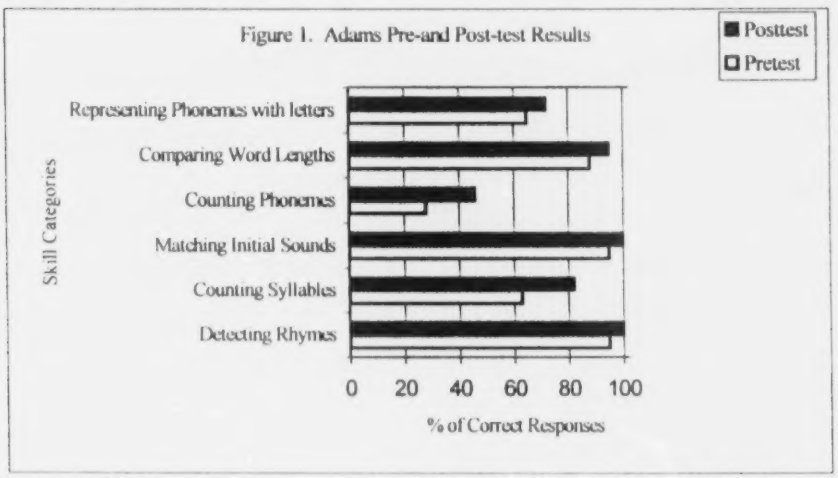

Figure 1. Comparison of Adams Pretest and Posttest Results.

In each of the skill categories tested, there was improvement between the pretest and posttest, with a range of 5% to 19%. The greatest gains were realized in counting syllables and counting phonemes. This may have been a result of the explicit teaching of skills that the students had not previously received. Most of the students in the targeted classes were already proficient in detecting rhymes and in matching initial sounds as indicated by the pretest results, and all were able to respond correctly to the posttests questions.

The Stanovich Informal Survey of Phonological Tasks (Appendix B) was also administered as a pretest and posttest. It was composed of nine questions that were both asked and responded to orally. All students in both classes were given this test individually. Figure 2 reports the comparison of the pretest and posttest results.

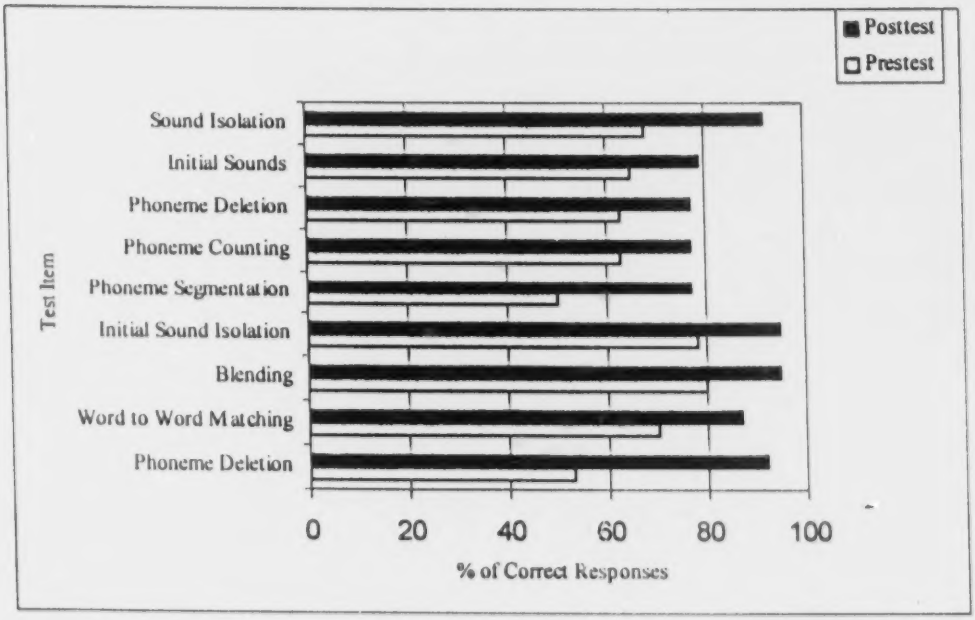

Figure 2. Comparison of Stanovich Pretest and Posttest Results.

Comparison of the pretest and posttest results of the Stanovich survey was more dramatic than that of the Adams test. The students once again showed an increase of performance on all phonological tasks with a range of 14% to 39%. The largest increases were in phoneme deletion, phoneme segmentation, and sound isolation. Both teacher-researchers felt this was at least in part due to the distinctions made during the interventions about counting sounds. Apparently, prior to taking the pretest, many of the students had not consciously counted sounds in words. Initially they would name the

letter rather than give the sound when asked a question such as, "What is the first sound in rose?" When asked, "What sounds do you hear in hot?" they would respond by naming the letters h-o-t. The posttest results reflected the differentiation that the students were now able to hear in the tasks they were asked to respond to.

It is helpful to consider that each school had different strengths and weaknesses in the assessments. The following tables show the results of the individual schools on each of the tests.

Table 3

School A Results on Adams Test

Skill Category	Pretest	Posttest	Change
Detecting Rhymes	95%	100%	+5%
Counting syllables	60%	100%	+40%
Matching initial sounds	95%	100%	+5%
Counting phonemes	45%	55%	+10%
Comparing word lengths	90%	100%	+10%
Representing phonemes with letters	90%	100%	+10%

School A, a second grade class, made the most dramatic gain in counting syllables and had the most difficulty with the skill of counting phonemes, which is counting the sounds heard in words. The teacher-researcher felt that the spelling knowledge of the students interfered with their ability to isolate sounds. These students had previous knowledge that words with digraphs used two letters to make a sound, and their answers often seemed to reflect this knowledge. These students began the year with a high level of phonemic awareness as indicated on the pretest scores.

Table 4

School B Results on Adams Test

Skill Category	Pretest	Posttest	Change
Detecting Rhymes	95%	100%	+5%
Counting syllables	65%	65%	0%
Matching initial sounds	95%	100%	+5%
Counting phonemes	10%	35%	+25%
Comparing word lengths	85%	90%	+5%
Representing phonemes with letters	40%	45%	+5%

The first graders at School B made their most dramatic gains in the skill of counting phonemes. The teacher-researcher felt that this was due to the interventions and to the new skill of stretching out a word to listen for each and every sound. These students did not have a lot of previous spelling experience, so digraphs and spelling knowledge did not interfere with their responses. Their knowledge of counting syllables did not change on the test. The gains in rhymes and initial sounds were minimal, but the students had scored relatively high on the pretest, so the potential for growth as measured on the test was limited.

Table 5.

School A Results on Stanovich Survey

Test Item	Pretest	Posttest	Change
Phoneme deletion	85%	100%	+15%
Word to word matching	55%	88%	+33%
Blending	85%	100%	+15%
Initial sound isolation	80%	94%	+6%
Phoneme segmentation	75%	94%	+19%
Phoneme counting	70%	77%	+7%
Phoneme deletion	55%	94%	+39%
Initial sounds	75%	100%	+25%
Sound isolation	70%	88%	+18%

The students in School A showed improvement in all levels of phonemic awareness as indicated by the pretest and posttest scores. Again, it seems as though students having increased language awareness, as many of the students at the second grade level have, continued to have some difficulty with phoneme counting. This could be due to their understanding of relationships of letters and how those relationships affect letter sounds through the phonics training they had experienced in the first grade. For example, knowing that the vowel consonant vowel patterns generally results in a long first vowel sound, as found in the word cake, students at School A would respond to the questions about the number of phonemes in cake as having four, not three, sounds/phonemes. They wanted to spell the words. Prior phonetic experiences could also account for difficulty in sound isolation.

Absenteeism could have affected the scoring of the Stanovich posttest. One of the students who had scored well on the pretest, was absent when the posttests was administered. It is possible that the posttest scores would have reflected additional increases had all students taken the test. When administering the tests, some students appeared to be slightly unsure of what was asked of them. The test language was not familiar and seemed to bewilder some of the students. However, every item of the Stanovich posttests did increase for the students at School A. This could indicate that phonemic awareness activities might increase language awareness.

Table 6

School B Results on Stanovich Survey

Test item	Pretest	Posttest	Change
Phoneme deletion	20%	85%	+65%
Word to word matching	85%	85%	0%
Blending	75%	90%	+15%
Initial sound isolation	75%	95%	+20%
Phoneme segmentation	25%	60%	+35%
Phoneme counting	55%	75%	+20%
Phoneme deletion	60%	60%	0%
Initial sounds	55%	60%	+5%
Sound isolation	65%	95%	+30%

The students in School B seemed to make improvements in all areas but two, word to word matching and phoneme deletion. Upon reflection, the teacher-researcher felt the language used during the testing situation had an impact upon the results. Rather than administer the test in common classroom language, formal test language was used. This seemed to confuse the students as they struggled with their responses. The students did appear to improve in their segmentation skills. This skill was probably practiced most frequently in many areas of the first grade curriculum as new words were encountered on a daily basis. Both teacher-researcher and the students found that stretching out a word carried over to all new words in order to hear and say them correctly and clearly. The students also seemed to make large gains in sound isolation. They were able to identify the initial sound in a word. This is such a fundamental skill that it is practiced frequently in early reading instruction. It was also strongly emphasized in the interventions.

Conclusions and Recommendations

After reviewing current research literature on the topic of phonemic awareness and analyzing the site pretest results, the teacher-researchers designed an action plan that instructed and engaged students in activities to increase their knowledge of language, namely phonemic awareness. The activities included rhyme and alliteration, blending, sequence of sounds, sound separation, and the manipulation of sounds. Upon examining the results of the posttest assessments, the teacher-researchers found that the students appear to have improved their ability to perform phonemic awareness tasks, on both oral and paper and pencil formats.

There were many positive outcomes resulting from the implementation of the action plan as indicated by comparing the pretest and posttest scores in Figures 1 & 2. Students were able to perform specific phonemic tasks with more proficiency. The teacher-researchers have been able to observe that their students are much more able to manipulate letters and letter sounds. The students seem to have a better ability to "sound out" words and a heightened awareness to rhyming, syllables and isolating sounds. They also seem to have stronger spelling skills than observed in previous years. This has enhanced their writing ability. Their confidence in their skills continues to drive them to further success.

By administering the pretests early in the school year the teacher-researchers were able to identify students who seemed to be more at-risk early in the school year. These students were watched more closely and were given extra encouragement to participate because teacher awareness was heightened early on. Of the four students in School B

who were identified as possibly being at-risk for learning to read, two have begun reading independently at an emergent level. The other two students appear to have another interference that may indicate learning problems. ESL implications for both of these children support the findings by Juel (1988), Lyon (1998) and Cunningham (1999) that imply when at home language differs from school language, confusion may result. These students have been referred to the school intervention team with more background data and at an earlier date than previously had been done with first grade students who were at-risk. Although posttests scores reflect improvement, those students identified as at-risk in School A, continue to struggle with reading skills. This would seem to indicate that although phonemic awareness can improve through a variety of activities, students entering school with poor phonemic awareness remain at a disadvantage.

Both teacher-researchers and students enjoyed the learning activities, many of which were oral in nature. This was an extremely important aspect of learning for primary students. The students had many opportunities to engage in word play, to be creative and to be verbal. Tongue twisters, rhyming books and games provided the springboards for many of these activities. Clapping, singing, and movement provided opportunities for the students to engage all of their modalities and to be more successful learners. The strategies employed in the interventions also found their way into all areas of the curriculum as new words were being introduced.

The teacher-researcher of the second grade students felt that the test assessments did not always indicate a true correlation between phonemic awareness the reading ability of the students. Some second grade students who had low scores on the tests were very strong readers. This would seem to make the point that phonemic awareness, while being

a key component of early reading success, may have less of an impact on those students having already acquired strong reading skills. Another indication may be that a strong spelling and reading ability, which would include knowledge of blends and digraphs, may have interfered with their ability to respond to test questions which required them to isolate sounds in words rather than identify letters making those sounds.

Both teacher-researchers observed that generally the most proficient readers in their classes scored consistently well on the pretests and posttests or made very small gains. Some students who scored low on the pretests made larger gains than expected, leading the teachers to believe that the interventions had an impact on those students.

The teacher-researchers have several recommendations for educators desiring to implement a phonemic awareness component to their reading instruction. Phonemic awareness skill instruction must begin as early as possible, preferably in preschool or kindergarten to have the greatest impact on the reading ability of students. Students need to be assessed as early as possible for their language knowledge in order to provide opportunities for instruction to fill in missing or underdeveloped skills. Kindergarten or early first grade would be most desirable time to assess these skills.

Classroom activities need to be stimulating while immersing the students in verbal creativity. Teachers should use various modalities to enhance language learning by making it fun and maintaining the students' interest. Daily literature needs to be varied to expose students to wide assortment of stories and rhymes. Teachers need to allow adequate time when preparing materials for classroom instruction. Many of the materials will be reusable, so the time investment is worth making. Time is also a consideration when asking the students to make the manipulatives to use for instruction. The materials

prepared by students took considerably longer to complete than expected. Therefore, it was difficult to include all of the activities that the teacher-researcher had originally planned for the intervention and resulted in omitting some of them in the interest of time.

The teacher-researchers would highly recommend that all primary classrooms provide students with phonemic awareness activities as a way of improving reading skills in their students. They also feel that spelling and writing skills will show improvement as a result of the phonemic awareness interventions. Staff Development for primary teachers that would include training in the levels of phonemic awareness, as well as in the use of tests as diagnostic tools, is essential.

The knowledge of language enables students to learn to read. Strong phonemic awareness provides this knowledge, which enhances the reading process. As students gain confidence in their abilities, they will be successful learners and successful readers.

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APPENDICES

Appendix A

Pretest and Posttest

Detecting Rhymes: Student Testing Form

Appendix A

Pretest and Posttest

Counting Syllables: Student Testing Form

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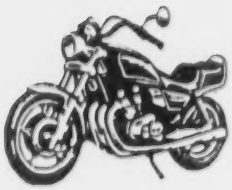

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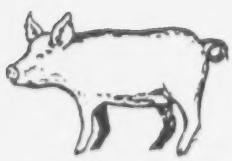
Appendix A

Pretest and Posttest

Matching Initial Sounds: Student Testing Form



Appendix A

Pretest and Posttest
Counting Phonemes: Student Testing Form

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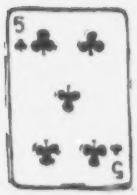
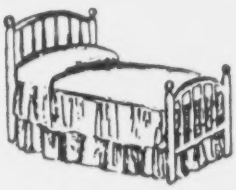
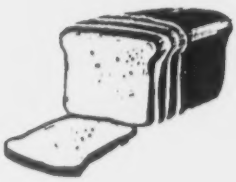
Appendix A

Pretest and Posttest

Comparing Word Lengths: Student Testing Form







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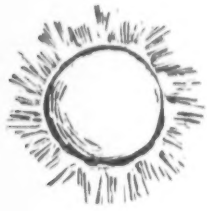
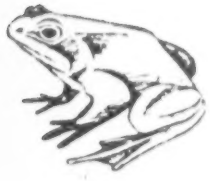
Appendix A

Representing Phonemes with Letters: Student Testing Form





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Appendix B

Pretest and Posttest

Informal Survey of Phonological Awareness Tasks

1. What word would be left if the /k/ sound were taken away from *cat*? (phoneme deletion)

2. Do *pen* and *pipe* begin with the same sound? (word to word matching)

3. What word would we have if you put these sounds together: /s/, /a/, /t/? (blending)

4. What is the first sound in *rose*? (sound isolation)

5. What sounds do you hear in the word *hot*? (phoneme segmentation)

6. How many sounds do you hear in the word *cake*? (phoneme counting)

7. What sound do you hear in *meat* that is missing in *eat*? (deleted phoneme)

8. What word starts with a different sound: *bag, nine, beach, bike*? (odd word out)

9. Is there a /k/ in bike? (sound to word matching)

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Appendix C

Rhyme-Away Story 2

Directions: Draw the picture below on the chalkboard. Have students fill in the missing rhymes, then erase the corresponding portions of the picture.

He can't smell a rose,
if you erase his nose.

He can't play in a band,
if you erase his hand.

He doesn't wear a tie,
erase an eye.

He doesn't care,
if you erase his hair.

Don't ask why,
erase his other eye.

Never fear,
erase an ear.

He'll be a real wreck,
if you erase his neck.

He won't feel heat,
if you erase his feet.

It won't hurt,
if you erase his shirt.

He can't dance,
if you erase his pants.

He can go to bed,
if you erase his head.

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Appendix D

Draw-a-Rhyme Story 1

Directions: Tell children they are going to draw a chalk picture together. Read each rhyme with the underlined words left out. Have children fill in the blanks (either orally or in writing), then add those parts to the chalkboard drawing.

When you draw a monster, it is said,
you always begin with his <u>head</u>.

He'll be able to see when he flies,
if we draw two bright <u>eyes</u>.

To tell which way the cold wind blows,
our monster will need a great big <u>nose</u>.

Look to the north and look to the south,
now we can give our monster a <u>mouth</u>.

Some up above and some beneath,
our monster has lots of <u>teeth</u>.

Now, under his chin, let's just check,
that's where we should put his <u>neck</u>.

So he won't be tipsy-toddy,
let's give him a polka-dot <u>body</u>.

If he really, really begs,
I guess we could give him <u>legs</u>.

To make our monster nice and neat,
we'll have to teach him to wipe his <u>feet</u>.

A notice sent by air mail!
We can't forget the monster's <u>tail</u>.

He isn't fierce, he isn't hairy,
but don't you think he's a little <u>scary</u>?

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Appendix E

Sound Dominos

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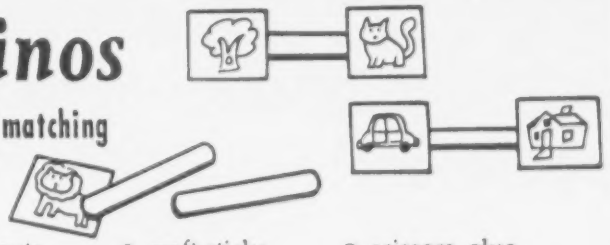
112

Appendix E

LEVEL 3

Sound Dominos



Tasks: phoneme isolation, sound matching

Materials

- Sound Dominos (page 112) or magazine cutouts
- craft sticks
- scissors, glue

Directions

1. Have partners cut and paste small pictures to both ends of craft sticks to make 15 to 20 picture dominos. Have each child choose four dominos and place the rest face down in a pile.
2. Explain that the object of the game is to get rid of your dominos by matching picture sounds. Have one player from each pair place a domino on a tabletop or the floor. The other player must then match one picture on that domino with one of their own. (For example, cat and car pictures match because they both begin with /c/.) If partners have no match, have them choose from the pile until one is found.
3. Partners take turns adding dominos to the pattern. A player wins when he or she runs out of dominos. (If all extra dominos are used, the player with the fewest unmatched dominos wins.)

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36

Appendix F

6A Clapping Names

Objective To introduce the children to the nature of syllables by leading them to clap and count the syllables in their own names

Activity When you first introduce this activity, model it by using several names of contrasting lengths. Pronounce the first name of one of the children in the classroom syllable by syllable while clapping it out before inviting the children to say and clap the name along with you. After each name has been clapped, ask "How many syllables did you hear?" Once the children have caught on, ask each child to clap and count the syllables in his or her own name. Don't forget last names, too! It is easy to continue clapping other words and to count the syllables in each. When doing the activity for the first time, model each child's name by pronouncing it, clapping it, and then having all of the children clap it together. After each name has been clapped by all of the children, ask "How many syllables did you hear?" If a name has many syllables, you may need to let children count the syllables as they are clapping.

Variations

- Ask the children to clap and count the syllables of their first and last names together.
- After determining the number of syllables in a name, ask the children to hold two fingers horizontally under their chins, so they can feel the chin drop for each syllable. To maximize this effect, encourage the children to elongate or stretch each syllable.
- As follows, this activity can be done to a rhythmic chant, such as "Bippity, Bippity Bumble Bee":

  Bippity, bippity bumble bee, tell me what your name should be.

  (Point to a child; that child responds by giving his name. Class repeats name out loud. Continue with one of the following:)

  1. "Clap it!" (Children repeat name, enunciating and clapping to each syllable.)
  2. "Whisper it!" (Children whisper each syllable while clapping.)
  3. "Silent!" (Children repeat name, silently enunciating syllables with mouth movement.)

Appendix G

Anecdotal Record

Student_____ _____

Date and Activity observed	Comments

Appendix H

RECOMMENDED BOOK LIST

A House is a House For Me by mary Ann Hoberman

A House is a House For Me by Mary Ann Hoberman

Alligators All Around by Maurice Sendak

Animalia by Graeme Base

Anna Banna: 101 Jump-Rope Rhymes by Joanna Cole

Big Bad Bruce by Bill Peet

Buford the Little Bighorn by Bill Peet

Buzz Said the Bee by W. Lewiston

Chicka Chicka Boom Boom by Bill Martin and J. Archambault

Chickens Aren't the Only Ones by Ruth Heller

Down by the Bay by Raffi

Dr. Seuss's ABC's by Dr. Seuss

Each Peach Pear Plum by Janet & Allan Ahlberg

Eating the Alphabet: Fruits and Vegetables from A to Z by Lois Ehlert

Eency Weency Spider by S. Schindler

Goodnight Moon by Margaret Wise Brown

Here Are My Hands by Bill Martin and J. Archambault

Hop on Pop by Dr. Seuss

Hunches is Bunches by Dr. Seuss

"I Can't, said the Ant" by P. Cameron

Appendix H

I Know an Old Lady Who Swallowed a Fly by Nadine Westcott

I Was Walking Down the Road by Sarah Barchas

Is Your Mama a Llama? By Deborah Guarino

Mary Wore Her Red Dress by Merle Peek

Miss Mary Mack by Joanna Cole

More Spaghetti, I Say! By Rita Gleman

Mother Goose: A Collection of Nursery Rhymes

My Sister Ate One Hare by B. Grossman

Noisy Nora by R. Wells

Not Now, Said the Cow by J. Oppenheim

Oh, A-Hunting We Will Go by John Langstaff

Old MacDonald Had A Farm by Tracey Pearson

On Beyond Zebra! By Dr. Seuss

One Fish, Two Fish, Red Fish, Blue Fish by Dr. Seuss

Pignic: An Alphabet Book in Rhymes by A. Miranda

Polar Bear, Polar Bear, What Do You Hear? By Bill Martin and Eric Carle

She'll Be Comin' Round the Mountain by Robert Quackenbush

Six Sick Sheep: 101 Tongue Twisters by Joanna Cole

Teddy Bear, Teddy Bear: A Classic Action Rhyme by Michael Hague

The Ant and the Elephant by Bill Peet

The Caboose Who Got Loose by Bill Peet

The Hungry Thing by Jan Slepian and Ann Seidler

Appendix H

The Jacket I Wear In the Snow by S. Neitzel

The Wheels on the Bus by Harriet Ziefert

There's a Wocket in My Pocket by Dr. Seuss

Wingdingdilly by Bill Peet

Zella, Zack, and Zodiak by Bill Peet